

### **REMARKS**

The Office Action dated March 23, 2009 has been received and carefully noted. The following remarks are submitted as a full and complete response thereto.

Claims 1-7 are currently pending and are respectfully submitted for consideration.

Reconsideration and withdrawal of the rejections is respectfully requested in light of the following remarks.

#### **Interview Summary**

The undersigned respectfully thanks the Examiner for conducting the in-person interview at the U.S. Patent & Trademark Office on June 2, 2009. The undersigned notes that the Interview Summary indicated that the interview was conduct over the telephone on May 2, 2009. See attached Interview Summary. However, the undersigned respectfully requests that the Interview Summary be corrected to indicate that the interview was conduct in person on June 2, 2009. The following comments are submitted in view of the interview.

#### **Rejections under 35 U.S.C. § 102**

Claims 1-7 were rejected under 35 U.S.C. §102(e) as being anticipated by Takenaka et al. (U.S. Patent No. 6,920,374). The Office Action asserted that Takenaka et al. discloses all of the elements recited in claims 1-7.



However, Applicants note that the pending application has a filing date of March 24, 2006, and claims priority to Japanese Application No. 2004-257697, which was filed on September 3, 2004. Applicants also note that the PCT application of Takenaka was filed on May 17, 2001.

In order for Takenaka et al. to receive a § 102(e) date, the WIPO publication of the PCT application must be published in English and designate the U.S. See MPEP § 706.02(f)(1). Because WIPO publication of the PCT application of Takenaka et al. was not published in English, but instead published in Japanese, Takenaka et al. is not afforded a § 102(e) date. See attached WIPO document. Therefore, Takenaka et al. is disqualified as prior art under § 102(e). See attached Interview Summary.

Because the Takenaka et al. is disqualified as prior art, the Applicants respectfully submit that the next Action cannot be made final in accordance with MPEP § 706.07(a).

However, in an attempt to further advance prosecution of the pending application, the following comments are presented below to further distinguish the claims over the Takenaka et al.

Claim 1, upon which claims 2-7 are dependent, recites a leg type mobile robot that includes a body, leg that are connected to the body via a first joint and feet that are connected to an end part of the leg via a second joint. Each foot includes at least one foot portion, which has a ground area to be grounded on a floor surface at the bottom thereof. Each foot also includes a floor reaction force detector for detecting floor reaction force



acting from a floor surface through the foot portion. A center of the second joint is offset against a position in a plane view. The position is the position where the distance to the remotest point of at least one ground area becomes minimum. A center of the floor reaction force detector is provided so that the center is in the vicinity of the position Pa than the center of the ankle joint in a plane view.

As will be discussed below, Applicants respectfully submit that Takenaka et al. fails to disclose, either expressly or inherently, all of the elements of the claims, and therefore fails to provide the advantages and features discussed above.

Takenaka et al. discusses a floor shape estimation system of a legged mobile robot. Specifically, Takenaka et al. discusses a floor shape estimation system of a legged mobile robot that accurately conducts simultaneous floor shape estimation, i.e., accurately estimates the inclination of the surface with which the foot is in contact and estimates a height difference between the surfaces with which the feet are in contact. See Takenaka et al., column 2, lines 11-19.

In claim 1, however, because “the position Pa is the position where the distance to the remotest point of at least one ground area becomes minimum” (claim 1, lines 11-12), “... a center (Pb) of the floor reaction force detector is provided ... in the vicinity of the position Pa ...” (claim 1, lines 13-15). As a result, the leg type mobile robot of claim 1 is more suitable for high speed travel.



Takenaka et al. cannot disclose, either expressly or inherently, at least, the above-quoted features of claim 1. Rather, Takenaka et al. discusses a known force sensor, i.e. a six-axis force and torque sensor. In particular, Takenaka et al. discusses that the force sensor is disposed at a position below each ankle joint for generating a signal indicative of three directional components  $F_x$ ,  $F_y$ ,  $F_z$  of force and three directional components  $M_x$ ,  $M_y$ ,  $M_z$  of torque or moment. As a result, a signal is outputted indicative of foot landing and floor reaction force.

However, Takenaka et al. is completely silent as to where is center (Pb) of the floor reaction force detector is provided, i.e. “in the vicinity of the position Pa” (claim 1, lines 13-14). Takenaka et al. is also completely silent as to why the center (Pb) of the floor reaction force detector is provided in the vicinity of the position Pa, i.e. “position Pa [being] the position where the distance to the remotest point of at least one ground area becomes minimum” (claim 1, lines 12-13). This silence in Takenaka et al. is not surprising, since Takenaka et al. is not concerned with where the center of the floor reaction force detector is provided, but instead Takenaka et al. is merely concerned with estimating the floor shape.

Furthermore, the Office Action took the position that Figs. 18(a)-(b) of Takenaka et al. to disclose “a center (Pb) of the floor reaction force detector is provided so that the center Pb is in the vicinity of the position Pa than the center Pc of the ankle joint in a plane view”, as recited in claim 1. However, the Office Action incorrectly referred to



Figs. 18(a)-(b) of Takenaka et al., because Takenaka et al. does not include Fig. 18(a) or Fig. 18(b). Instead, Takenaka et al. simply describes Fig. 18. Fig. 18 of Takenaka et al. merely illustrates a calculation of a composite compliance operation determinator. This illustration of calculations in Fig. 18 of Takenaka et al. clearly do not relate to where and why the center (Pb) of the floor reaction force detector is provided. In fact, Fig. 18 of Takenaka et al. would not be used to make such a disclosure, because Fig. 18 of Takenaka et al. simply discusses that the calculations are provided by the composite compliance operation determinator. See Takenaka et al., column 19, lines 40-42.

Therefore, Applicants respectfully submit that Takenaka et al. does not disclose, either expressly or inherently, at least,

a center (Pc) of the second joint is offset against a position Pa in a plane view, the position Pa is the position where the distance to the remotest point of at least one ground area becomes minimum, and a center (Pb) of the floor reaction force detector is provided so that the center Pb is in the vicinity of the position Pa than the center Pc of the ankle joint in a plane view

as recited in claim 1. Accordingly, Applicants respectfully request that the rejection of claim 1 be withdrawn and this claim be allowed for at least the reasons presented above.

Claims 2-7 depend upon claim 1 and, therefore, claims 2-7 inherit the patentable features of base claim 1. Accordingly, Applicants respectfully request that the rejection of claims 2-7 be withdrawn and these claims be allowed for at least the same and/or similar reasons as base claim 1, and for the specific limitations recited therein.



### **Conclusion**

For at least the reasons discussed above, Applicants respectfully submit that none of the cited references, whether considered alone or in combination, disclose, either expressly, implicitly or inherently, all of the elements of the claimed invention. These distinctions are more than sufficient to render the claimed invention unanticipated and unobvious. It is therefore respectfully requested that all of claims 1-7 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this application.



In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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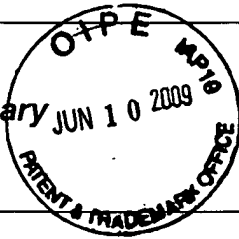
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Enclosures: Interview Summary  
WIPO Publication



**Interview Summary**

Application No.

10/573,471

Applicant(s)

TAKENAKA ET AL.

Examiner

MCDIEUNEL MARC

Art Unit

3664

All participants (applicant, applicant's representative, PTO personnel):

(1) MCDIEUNEL MARC.

(3) \_\_\_\_\_

(2) Sheetal Patel, Reg., No. 59,326.

(4) \_\_\_\_\_

Date of Interview: 02 May 2004.Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.  
If Yes, brief description: \_\_\_\_\_Claim(s) discussed: 1.Identification of prior art discussed: 6,920,374.Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/McDieunel Marc/  
Examiner, Art Unit 3664



## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.





Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's representative Mr. Sheetal Patel discussed that prior art 374' does not qualify as a 102(e) and the Examiner agreed; Also, Mr. sheetal Patel discussed that the prior art does not appear to teach a leg type mobile robot that comprising a center (Pc) of the second joint is offset against a position Pa in a plane view, the position Pa is the position where the distance to the remotest point of at least one ground area becomes minimum, and a center (Pb) of the floor reaction force detector is provided so that the center Pb is in the vicinity of the position Pa than the center Pc of the ankle joint in a plane view. Examiner will update the search and reconsider.



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Search result: 1 of 1

## (WO/2003/090978) CONTROL DEVICE OF LEGGED MOBILE ROBOT

[Biblio. Data](#) [Full Text](#) [National Phase](#) [Notices](#) [Documents](#)

Latest bibliographic data on file with the International Bureau

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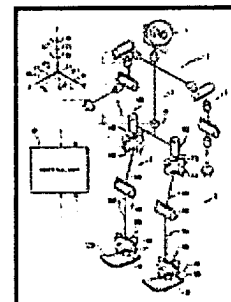
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**Priority Data:** 2002-127684 26.04.2002 JP

**Title:** CONTROL DEVICE OF LEGGED MOBILE ROBOT

**Abstract:** A control device of a legged mobile robot, wherein a state amount deviation (for example, the deviation of the vertical position of an upper body (3)), which is a deviation between an actual state amount and the state amount of a target gait pattern in the translation motion (for example, translation motion in vertical direction) of the legged mobile robot (1) in a specified direction, is obtained and the target motion of the target gait pattern is determined so that the state amount deviation can be brought into near zero, the target motion is determined by using a dynamic model by additionally inputting a virtual external force determined according to the state amount deviation into the dynamic model for generating the target gait pattern, the target floor reaction of the robot (1) is corrected according to the state amount deviation of zero, and the motion and the floor reaction of the robot (1) are allowed to follow up the target motion of the target gait pattern and the target floor reaction by a compliance control.



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